Pflügers Archiv

European Journal of Physiology

Vol. 355 1975

Editors

J. Th. F. Boeles, Amsterdam · H. Bornschein, Wien
V. Capraro, Milano · P. Deetjen, Innsbruck
E. Gerlach, München · E. Gutmann, Praha
H. Hensel, Marburg · K. Hierholzer, Berlin
A. Jost, Paris · K. Kramer, München
N. A. Lassen, Copenhagen
F. Morel, Paris · G. Moruzzi, Pisa
O. Pompeiano, Pisa · J. M. Posternak, Genève
G. Semenza, Zürich · R. Stämpfli, Homburg (Saar)
R. Thauer, Bad Nauheim-Gießen
W. Trautwein, Homburg (Saar)
E. Wetterer, Erlangen · W. G. Zijlstra, Groningen

Managing Editor

F. Kreuzer, Nijmegen

Springer-Verlag Berlin · Heidelberg · New York

Pflügers Archiv · European Journal of Physiology

Founded in 1868 as "Pflügers Archiv für die gesamte Physiologie des Menschen und der Tiere" by *E. F. W. Pflüger*. Edited by *M. Verworn, E. Abderhalden, A. Bethe, R. Höber, A. v. Muralt, H. Rein* et al.

Published: Vol. 1–29 (1876) Bonn, Cohen und Sohn; Vol. 30–92 (1901) Bonn, E. Strauß; Vol. 93–170 (1917) Bonn, M. Hager; since Vol. 171 (1918) Berlin, Springer.

Since 1920 Pflügers Archiv has included: "Archiv für Physiologie" (Archiv für Anatomie und Physiologie, Physiologische Abteilung). Founded and edited by Johannes Müller, E. du Bois-Reymond, W. v. Waldeyer-Hartz et al. 1877–1914, Leipzig, Veit und Co., since 1915, Berlin, Vereinigung Wissenschaftlicher Verleger, afterwards Walter de Gruyter.

Alle Rechte, einschließlich das der Übersetzung in fremde Sprachen und das der fotomechanischen Wiedergabe oder einer sonstigen Vervielfältigung, auch in Mikroform, vorbehalten. Jedoch wird gewerblichen Unternehmen für den innerbetrieblichen Gebrauch nach Maßgabe des zwischen dem Börsenverein des Deutschen Buchhandels e.V. und dem Bundesverband der Deutschen Industrie abgeschlossenen Rahmenabkommens die Anfertigung einer fotomechanischen Vervielfältigung gestattet. Wenn für diese Zeitschrift kein Pauschalabkommen mit dem Verlag vereinbart worden ist, ist eine Wertmarke im Betrage von DM 0,40 pro Seite zu verwenden. *Der Verlag läßt diese Beträge den Autorenverbänden zufließen.*

Die Wiedergabe von Gebrauchsnamen, Handelsnamen, Warenbezeichnungen usw. in dieser Zeitschrift berechtigt auch ohne besondere Kennzeichnung nicht zu der Annahme, daß solche Namen im Sinne der Warenzeichen- und Markenschutz-Gesetzgebung als frei zu betrachten wären und daher von jedermann benutzt werden dürften.

The exclusive copyright for all languages and countries, including the right for photomechanical and any other reproductions, also in microform, is transferred to the publisher.

The use of registered names, trademarks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

Springer-Verlag, Berlin · Heidelberg · New York

Printers: Wiesbadener Graphische Betriebe GmbH, Wiesbaden

Printed in Germany — © by Springer-Verlag, Berlin · Heidelberg 1975

Inhalt/Contents

Ackermann, U.: An Approach to the Measurement of Body Fluid Compartment Volumes in Non-Steady State Conditions in the Rat 141
Ackermann, U.: On the Regulation of the Renal Response to Blood Volume Expansion by Vascular Parameters in the Rat 151
Akaike, N.: Activation of Electrogenic Sodium Pump in Mammalian Skeletal Muscle by External Cations 281
Bauer, R. D., s. Sperling, W., *et al.* 217
Ben-Haim, D., Dreyer, F., Peper, K.: Acetylcholine Receptor: Modification of Synaptic Gating Mechanism after Treatment with a Disulfide Bond Reducing Agent 19
Bergenwald, L., Freyschuss, U., Melcher, A., Sjöstrand, T.: Circulatory and Respiratory Adaptation in Man to Acute Withdrawal and Reinfusion of Blood 307
Bergman, C., s. Dubois, J. M. 361
Berne, R. M., s. Bockman, E. L., *et al.* 229
Bleys, J. L. M., s. Wellens, D. L. F., *et al.* 95
Blunt, R. J., Jones, R., Vrbová, G.: Inhibition of Cell Division and the Development of Denervation Hypersensitivity in Skeletal Muscle 189
Bockman, E. L., Berne, R. M., Rubio, R.: Release of Adenosine and Lack of Release of ATP from Contracting Skeletal Muscle 229
Bogaert, A. H. L. van, s. Wellens, D. L. F., *et al.* 95
Bogaert, P. P. P. M. van, s. Wellens, D. L. F., *et al.* 95
Busse, R., s. Sperling, W., *et al.* 217
Casavola, V., s. Curci, S., *et al.* 267
Claessens, R. A., s. Turek, Z., *et al.* 49
Cremaschi, D., s. Hénin, S. 125
Curci, S., Casavola, V., Lippe, C.: Permeability Pathways for Non-Electrolytes through Bufo bufo Gall-Bladder 267
Delcayre, C., Swynghedauw, B.: A Comparative Study of Heart Myosin. ATPase and Light Subunits from Different Species 39
Drack, E., s. Sommer, H. M., *et al.* 353
Dreyer, F., s. Ben-Haim, D., *et al.* 19
Dubois, J. M., Bergman, C.: Cesium Induced Rectifications in Frog Myelinated Fibres 361
Ehrlich, W., s. Schrijen, F., *et al.* 205
Freyschuss, U., s. Bergenwald, L., *et al.* 307
Greenway, R. M., s. Sarelius, I. H. 243
Gülch, R. W., Jacob, R.: Length-Tension Diagram and Force-Velocity Relations of Mammalian Cardiac Muscle under Steady-State Conditions 331
Hattingh, J.: Heparin and Ethylenediamine Tetra-Acetate as Anticoagulants for Fish Blood 347
Heldmaier, G.: The Influence of the Social Thermoregulation on the Cold-Adaptive Growth of BAT in Hairless and Furred Mice 261
Hénin, S., Cremaschi, D.: Transcellular Ion Route in Rabbit Gallbladder. Electric Properties of the Epithelial Cells 125
Herdey, A., s. Kohlhardt, M., *et al.* 1
Jacob, R., s. Gülch, R. W. 331
Jones, R., s. Blunt, R. J., *et al.* 189
Kaiser, D., s. Sommer, H. M., *et al.* 353
Kenner, Th., s. Pessenhofer, H. 77
Kohlhardt, M., Krause, H., Kübler, M., Herdey, A.: Kinetics of Inactivation and Recovery of the Slow Inward Current in the Mammalian Ventricular Myocardium 1
Körner, H., s. Sperling, W., *et al.* 217
Krause, H., s. Kohlhardt, M., *et al.* 1
Kreuzer, F., s. Turek, Z., *et al.* 49
Kübler, M., s. Kohlhardt, M., *et al.* 1
Lippe, C., s. Curci, S., *et al.* 267
Loeschke, K., Müller, O. A.: Hormones and the Stimulated Sodium Transport in Cecum Hypertrophy 273

Melcher, A., s. Bergenwald, L., *et al.* 307
Menge, H., s. Mirkovitch, V., *et al.* 319
Meyer, U., Schiffer, W., Raff, W. K.: Untersuchungen zur Größe der hypoxischen und pharmakologischen Coronardilatation 63
Mirkovitch, V., Sepúlveda, F. V., Menge, H., Robinson, J. W. L.: Active Amino-Acid and Sugar Uptake by Gall Bladder Epithelium in Dog, Guinea-Pig and Man 319
Müller, O. A., s. Loeschke, K. 273
Müller-Ruchholtz, E. R., s. Schulze Wischeler, B., *et al.* 27
Ozawa, S., s. Richter, A., *et al.* 85
Pasch, Th., s. Sperling, W., *et al.* 217
Peper, K., s. Ben-Haim, D., *et al.* 19
Permutt, S., s. Schrijen, F., *et al.* 205
Pessenhofer, H., Kenner, Th.: Zur Methodik der kontinuierlichen Bestimmung der Phasenbeziehung zwischen Herzschlag und Atmung 77
Precht, W., s. Richter, A., *et al.* 85
Raff, W. K., s. Meyer, U., *et al.* 63
Reinauer, H., s. Schulze Wischeler, B., *et al.* 27
Richter, A., Precht, W., Ozawa, S.: Responses of Neurons of Lizard's, Lacerta viridis, Vestibular Nuclei to Electrical Stimulation of the Ipsi- and Contralateral VIIIth Nerves 85
Ringnalda, B. E. M., s. Turek, Z., *et al.* 49
Robinson, J. W. L., s. Mirkovitch, V., *et al.* 319
Rubio, R., s. Bockman, E. L., *et al.* 229
Sarelius, I. H., Greenway, R. M.: Rhythmic Fluctuations in the Urine Composition of Sheep. Separation of Feed-Dependent from Other Rhythms . . 243
Schiffer, W., s. Meyer, U., *et al.* 63
Schneider, W.: Chloride Transport in Isolated Skin of Rana esculenta 107
Schrijen, F., Ehrlich, W., Permutt, S.: Cardiovascular Changes in Conscious Dogs during Spontaneous Deep Breaths 205
Schulze Wischeler, B., Müller-Ruchholtz, E. R., Reinauer, H.: Einfluß von Herzarbeit und Substratangebot auf die Regulation der Pyruvatdehydrogenase-Aktivität an isolierten Meerschweinchenherzen 27
Sepúlveda, F. V., s. Mirkovitch, V., *et al.* 319
Sjöstrand, T., s. Bergenwald, L., *et al.* 307
Sommer, H. M., Kaiser, D., Drack, E.: pH and Bicarbonate Excretion in the Rat Parotid Gland as a Function of Salivary Rate 353
Sperling, W., Bauer, R. D., Busse, R., Körner, H., Pasch, Th.: The Resolution of Arterial Pulses into Forward and Backward Waves as an Approach to the Determination of the Characteristic Impedance 217
Swynghedauw, B., s. Delcayre, C. 39
Szczepańska-Sadowska, E.: Osmotic Thirst Suppression during 2,4-Dinitrophenol (DNP) Hyperthermia in the Dog 165
Tiedt, N., Wohlgemuth, B., Wohlgemuth, P.: Dynamic Characteristics of Heart-Rate Responses to Sine-Function Work-Load Patterns in Man 175
Turek, Z., Turek-Maischeider, M., Claessens, R. A., Ringnalda, B. E. M., Kreuzer, F.: Coronary Blood Flow in Rats Native to Simulated High Altitude and in Rats Exposed to It Later in Life 49
Turek-Maischeider, M., s. Turek, Z., *et al.* 49
Vrbová, G., s. Blunt, R. J., *et al.* 189
Wellens, D. L. F., Bogaert, A. H. L. van, Wilde, A. M. J. de, Bogaert, P. P. P. M. van, Bleys, J. L. M.: Influence of Electrical Stimulation of the Posterior Hypothalamus on Musculocutaneous and Renal Circulation in Anesthetized Dogs 95
Wilde, A. M. J. de, s. Wellens, D. L. F., *et al.* 95
Wohlgemuth, B., s. Tiedt, N., *et al.* 175
Wohlgemuth, P., s. Tiedt, N., *et al.* 175
Ypey, D. L.: Feedback of Isotonic Muscle Contraction on Neuromuscular Impulse Transmission in the Frog 291

Indexed in Current Contents

Psychic Dependence

Definition, Assessment in Animals and Man – Theoretical and Clinical Implications

Bayer-Symposium IV
held at Grosse Ledder near Cologne, Germany, September 27th-October 1st, 1972

Edited by L. Goldberg · F. Hoffmeister
47 figures. X, 244 pages. 1973.
Cloth DM 58,–; US $22.40
ISBN 3-540-06478-8
Prices are subject to change without notice

This book deals with the factors that underlie the development of psychic dependence. An attempt is made to define or redefine the concept of psychic dependence. The social consequences of the abuse of psychic dependence-producing drugs are discussed with special reference to the risk to public health.

One of the main topics examined is the discussion concerning the value of animal models for the prediction of the psychic dependence-producing capacity of drugs in man. Further, the methods of clinical pharmacology as applied to the assessment of abuse potential in man are described and considered with due regard to the ethical and legal implications of clinical trials of this kind.

Springer-Verlag Berlin Heidelberg New York

Pflügers Archiv

European Journal of Physiology

Vol. 355 No. 4 1975

Contents

281 **N. Akaike:** Activation of Electrogenic Sodium Pump in Mammalian Skeletal Muscle by External Cations

291 **D. L. Ypey:** Feedback of Isotonic Muscle Contraction on Neuromuscular Impulse Transmission in the Frog

307 **L. Bergenwald, U. Freyschuss, A. Melcher, T. Sjöstrand:** Circulatory and Respiratory Adaptation in Man to Acute Withdrawal and Reinfusion of Blood

319 **V. Mirkovitch, F. V. Sepúlveda, H. Menge, J. W. L. Robinson:** Active Amino-Acid and Sugar Uptake by Gall Bladder Epithelium in Dog, Guinea-Pig and Man

331 **R. W. Gülch, R. Jacob:** Length-Tension Diagram and Force-Velocity Relations of Mammalian Cardiac Muscle under Steady-State Conditions

347 **J. Hattingh:** Heparin and Ethylenediamine Tetra-Acetate as Anticoagulants for Fish Blood

353 **H. M. Sommer, D. Kaiser, E. Drack:** pH and Bicarbonate Excretion in the Rat Parotid Gland as a Function of Salivary Rate

Short Communications and Technical Notes

361 **J. M. Dubois, C. Bergman:** Cesium Induced Rectifications in Frog Myelinated Fibres

Indexed in Current Contents

Responsible for advertisements: L. Siegel, D-1000 Berlin 15, Kurfürstendamm 237
Telephone: (030) 8821031, Telex: 01-85411
Springer-Verlag, Berlin · Heidelberg · New York
Printers: Wiesbadener Graphische Betriebe GmbH, D-6200 Wiesbaden

Printed in Germany — © by Springer-Verlag, Berlin · Heidelberg 1975